02/07/14 Agenda:

- Warm Up Problem

- Review Homework
    - Worksheet 9 - Trig Ratios - Mixed Review

- Section 7.5 - 7.7 - Trig Word Problems

- Homework
    - Worksheet 10 - Trig Word Problems

Section 7.5 - 7.7 - Trig Word Problems

Target 7D & 7E

February 7, 2014

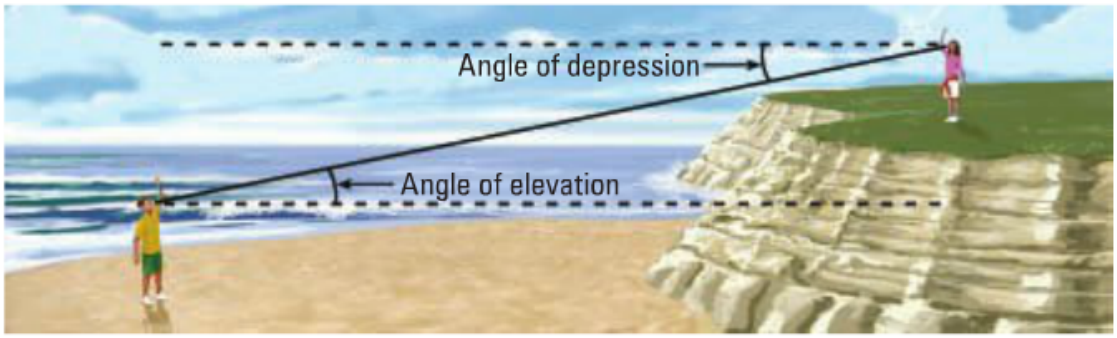
Goal:	Be able to solve word problems involving trig functions.

Steps:	1. Draw a picture of the problem.
	2. Create a right triangle and put in the numbers.
	3. Solve like any other trig problem.

Some definitions:

Angle of elevation means you are looking up at something.

Angle of depression means you are looking down at something.

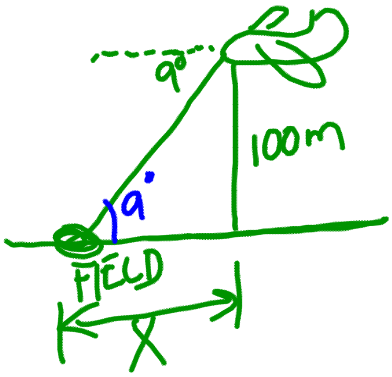


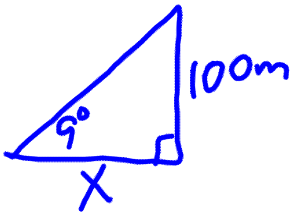
Section 7.5 - 7.7 - Trig Word Problems

Target 7D & 7E

February 7, 2014

1. A glider is flying above a field. The glider spots the field at a 9° angle of depression. The glider is flying at an altitude of 100 m. What is the distance from the glider to the field?

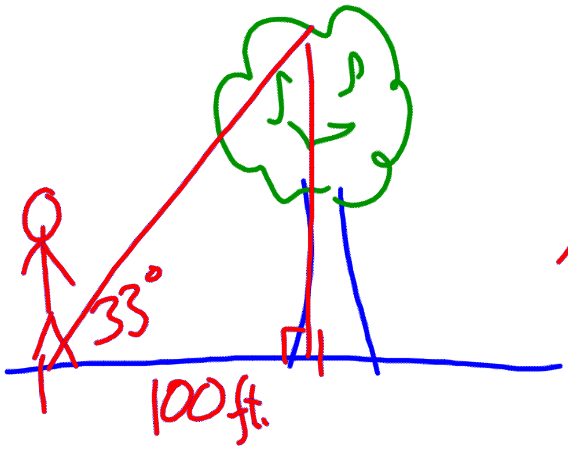


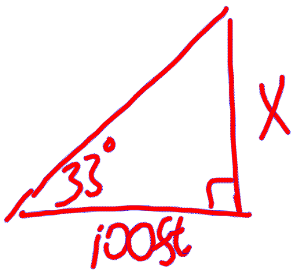


$\tan 9° = \frac{100}{X}$

$X = 631.4\text{m}$ $X = \frac{100}{\tan 9°}$

2. John wants to measure the height of a tree. He walks exactly 100 feet from the base of the tree looks up. The angle from the ground to the top of the tree is 33°. How tall is the tree?





$S = \frac{O}{H}$

$C = \frac{A}{H}$

$T = \frac{O}{A}$

$\tan 33 = \frac{X}{100}$

$100 \cdot \tan 33 = X$

$X = 64.9\text{ft}$

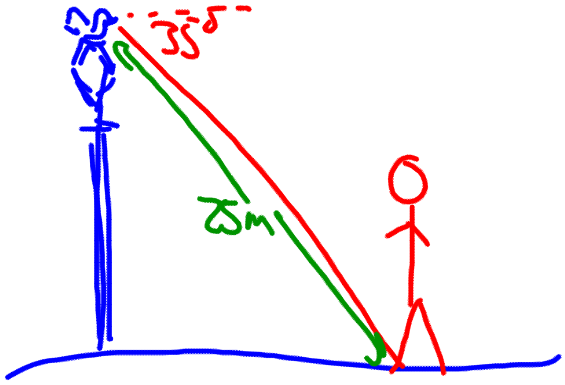
Section 7.5 - 7.7 - Trig Word Problems

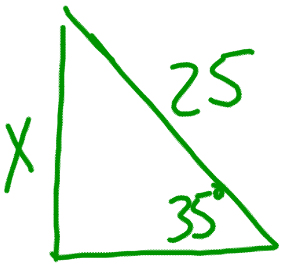
Target 7D & 7E

February 7, 2014

3. An airplane is flying at a height of 2 miles above the ground. The distance along the ground from the airplane to the airport is 5 miles. What is the angle of depression from the airplane to the airport?

4. A bird sits on top of a lamppost. The angle of depression from the bird to the feet of an observer standing away from the lamppost is 35°. The distance from the bird to the observer is 25 m. How tall is a lamppost?





$\sin 35 = \frac{X}{25}$

$25 \cdot \sin 35^\circ = X$

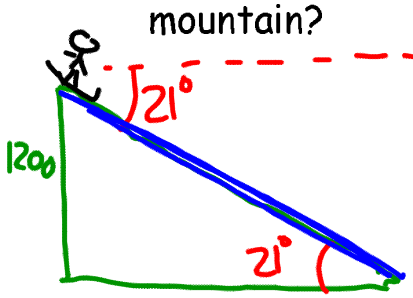
$X = 14.3\text{ m}$

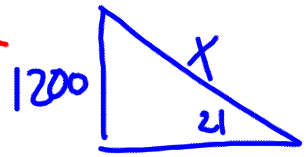
Section 7.5 - 7.7 - Trig Word Problems

Target 7D & 7E

February 7, 2014

5. You are skiing on a mountain with an altitude of 1200 m. The angle of depression is 21°. About how far do you ski down the mountain?



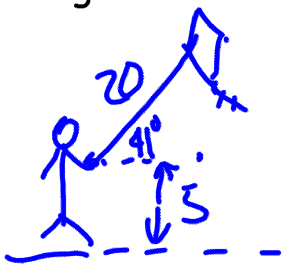


$\sin 21° = \frac{1200}{x}$

$x = \frac{1200}{\sin 21°}$

$x = 3348.5$ ft.

6. You are flying a kite with 20 feet of string extended. The angle of elevation from the spool of string to the kite is 41°. How far off the ground is the kite if you hold the spool 5 feet off the ground?



$x = 13.1$ ft

$+5$

18.1